

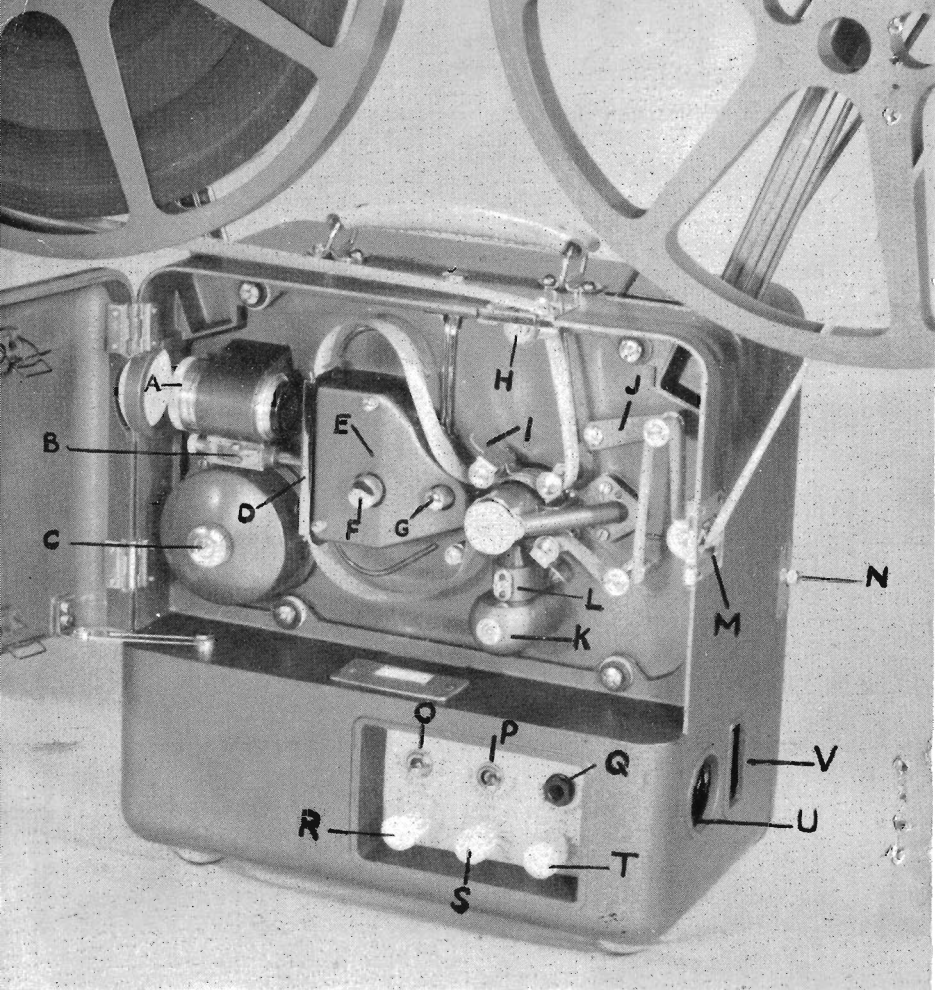
# FILM-TECH

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# The 540 PROJECTOR

## KEY

- |   |                      |   |                                   |
|---|----------------------|---|-----------------------------------|
| A | Lens                 | M | Take-up outlet roller             |
| B | Gate catch           | N | Door catch                        |
| C | Speed control        | O | Exciter lamp switch               |
| D | Film gate            | P | Lamp switch                       |
| E | Intermittent cover   | Q | Mic/gram socket                   |
| F | Inching knob         | R | Amplifier switch and tone control |
| G | Framing knob         | S | Film volume control               |
| H | Film "lead-in"       | T | Mic/gram volume control           |
| I | Upper sprocket guard | U | Mains input socket                |
| J | Snubber roller       | V | Speaker input socket              |
| K | Exciter lamp cover   |   |                                   |
| L | Sound optic          |   |                                   |

## SETTING UP

Open the doors on either side by pressing down the spring catches.

Remove the two spool arms from their clips inside the left-hand door.

Insert the spool arm carrying the pulley into the slot at the rear of the projector, then place the other spool arm (with the spindle pointing to the left) into the similar slot at the front of the machine.

Withdraw the spring belt from the runway behind the carrying handle and if the spools are of the 1,600-ft. or 1,800-ft. size place it over the larger of the two pulleys on the rear of the spool arm. For spools of the 800-ft., 400-ft., 100-ft. and 50-ft. sizes the smaller of the pulleys should be used.

The projector will operate from alternating current mains of 105 v. to 125 v. and 170 v. to 250 v.—but it is most important to adjust the transformer tapping correctly. The tapping board lies just inside the right-hand door and the voltage is selected by placing the two coloured links in sockets corresponding to your voltage.

The supply voltage is often indicated on the electricity meter. If you are in doubt the office of the local electricity board will give free information.

## TESTING

First, open the loudspeaker case and remove the cable. The shorter cable has a plug at one end for insertion in the socket at the rear of the projector and bare wires at the other: these wires are for attachment to a mains plug that will fit your own domestic socket. The third wire (green) of the cable is for connection to an earth. If a three-pin plug is not available it is advisable to wire this to some form of earth such as water pipes, etc. Before connecting to the mains, check the transformer tapping once again and then close the right-hand door.

The longer cable carries the sound from the projector to the loudspeaker; place the plug in the other socket at the rear of the projector. These plugs are non-interchangeable and cannot be inserted the wrong way round. Now turn the "amplifier and tone" knob on the control panel until a slight click is heard. The projector is so wired that nothing will run until this switch is on.

While the amplifier is warming the rest of the machine can be tested. Switch on motor. Once the motor is running the lamp can be switched on by operating the central switch. Reverse this procedure to switch off.

With the lamp switched on, the projector can now be aligned on the screen. This can be done by unscrewing the two threaded feet in front until the illuminated rectangle of light lies horizontally and in the correct position. *Whenever the lamp is on, be careful not to jolt the projector, as early lamp failure may result.*

The edges of the illuminated rectangle can now be brought into focus by rotating the lens barrel. This is the method used for focusing the projector during the show.

The sound reproducing equipment is ready for testing. Place the loudspeaker at one side of the screen and preferably at least six feet above the floor and operate the "sound" switch on the control panel. This switches on the exciter lamp.

Turn the knob marked "Volume I" in a clockwise direction until a loud hiss comes from the loudspeaker. This indicates that the sound system is working satisfactorily. Turn the control anti-clockwise and the sound testing is complete. The projector is now ready for its first film.

A microphone or gramophone pick-up can be used with your projector. The input socket is in the upper right-hand corner of the control panel and the volume is adjusted by the knob marked "Volume II". When using a microphone or pick-up, "Volume I" should also be turned partially clockwise.

## THREADING

Place the spool of film on the front spool arm by pressing it on the spindle until it locks in position. Usually the film will come from the front of the spool, but however it may have been wound by the library there is a simple rule to ensure that the picture will appear the right way up on the screen. The individual pictures should be upside down as the film enters the machine and the sprocket holes should be away from the user.

Most films have a length of plain "leader" film before the picture begins. This leader should be used for threading, so that if mistakes are made the picture is not likely to be damaged.

From the spool and the upper feed roller take the film to the main sprocket wheel, as shown by the red line on the case. Lift the sprocket guard to allow the film to be slipped underneath until the sprocket holes engage with the teeth on the wheel. *Severe film damage can be caused if these teeth are not correctly engaged.*

Open the picture gate to receive the film. This is done by sliding the gate catch to the front until it locks in position.

Leaving a loop of film to correspond with the red line, slip the film sideways into the picture gate. Then holding the film with the right hand, release the gate catch by pressing the front end and allow the gate to close slowly under the pressure of the spring. The gate should not be allowed to spring back, as this may damage the film.

Leaving another loop of free film below the gate, engage the film with the sprocket teeth on the underneath of the sprocket wheel, after first releasing the lower sprocket guard.

From the main sprocket wheel, continue lacing. The snubber roller is sprung to prevent mechanical damage to the film.

After placing an empty spool on the spindle of the rear spool arm, slip the end of the film in the small slot at the centre of the spool—remembering that the film will wind on anti-clockwise when the projector is started up. Take the front part of the spring belt in the right hand and pull it gently *upwards*; this will ensure that the film does not "snatch" at the moment of starting.

To make sure that the projector has been correctly laced, give a few clockwise turns to the inching knob behind the picture gate. See that the film run through the projector easily and that the upper and lower loops do not change in size.

The projector is now fully threaded and ready for switching on in the following stages:

1. Make sure the amplifier switch is on.
2. Switch on the motor.
3. Allow the leader to run through and switch on the lamp.
4. Bring the picture into sharp focus by rotating the lens barrel.
5. Switch on the exciter lamp.
6. Slowly turn the "Volume I" control until sufficient volume is provided.
7. Adjust the "Amplifier and Tone" control until sound quality is pleasing and distinct.

## MAINTENANCE

The projector does not need any attention apart from normal oiling and cleaning. It should be brushed out from time to time. Any surplus oil should be wiped away. Do not attempt to repair the projector yourself or make any alterations to screws or not you may see; if in doubt consult your dealer.

The projector lens should never be cleaned with a handkerchief, but always with LENS TISSUE. This tissue can be obtained from any cine or photographic dealer. A clean camel hair brush may be used to remove dust.

The projection gate should be removed for cleaning after every reel of film. First open the gate and lift up and out. The highly polished surface must be treated with care, and should be cleaned with a gate brush, if any film emulsion is adhering to its surface it should be removed with a sharpened piece of plastic or with the edge of a penny. Hard metals must never be used.

The projector is fitted with a speed control knob. If this knob is turned approx. ONE turn your projector is ready for SILENT FILM projection. Do not forget to unscrew (anti-clockwise) the knob to its original position before resuming sound projection.

The machine needs very little oil, but the amount and quality that is used is most important. The amount is ONE drop for every show given. This is placed in the hole covered by a screw cap, located on top of the projector. The oil is retained by a felt pad, which distributes it to all parts of the projector.

To remove the projector lamp. *First remove the mains plug from the machine.* Press in the stud, this will release the lamphouse door.

Allow the lamphouse door to fall back into the hand. Care is needed not to let the door fall back and jar, as the lamp and fittings are attached to it.

Hold the lamp and turn anti-clockwise. The lamp will then lift out easily. To replace reverse the operation and turn the lamp until it stops. This places it in a pefocus position and eliminates the necessity to focus each individual lamp.

The "Sound" lamp can be removed in the following manner: unscrew the small knurled ring in front of the exciter lamp cover. Push down the lamp retaining shield and remove the lamp by pulling out. When replacing, make sure the filament is parallel with the base of the projector.

## FAULT FINDING

<i>Fault</i>	<i>Remedy</i>
Projector will not run	Amplifier switch not on Mains input not on House fuse blown
Motor will not run	Amplifier switch not on Rear door closed
Motor but no lamp	Lamp switch not on Lamp burnt out
No sound at all	Speaker plug not connected Volume I not turned up Amplifier fuse b'own Valve fault
No film sound (but slight hiss)	Sound lamp not on Sound lamp burnt out
Deep bass sound	Projector running slow Volume II is turned up
Wavy uneven sound	Clutch not adjusted
Film being damaged	Stop projector Check threading Check clutch tension
Film scratch	Clean gate Clean film rollers
Unsharp picture	Re-focus lens Clean gate Clean lens
Line across top or bottom of picture	Use framing control